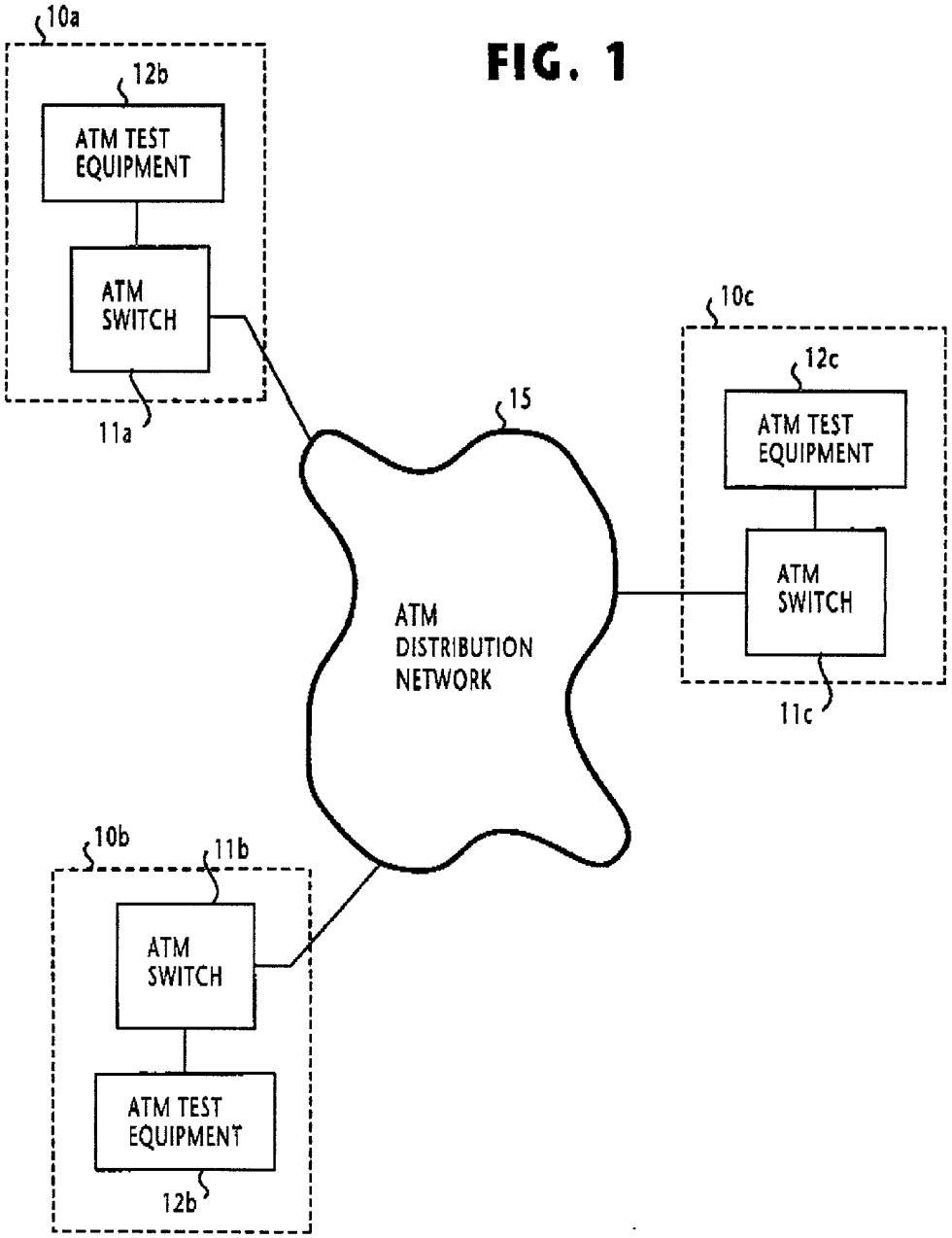

10a
12b
ATM TEST EQUIPMENT
ATM SWITCH
11a
15
ATM DISTRIBUTION NETWORK
10c
12c
ATM TEST EQUIPMENT
ATM SWITCH
11c
10b
11b
ATM SWITCH
ATM TEST EQUIPMENT
12b

FIG. 1

FIG. 2A

LOOPBACK MODE

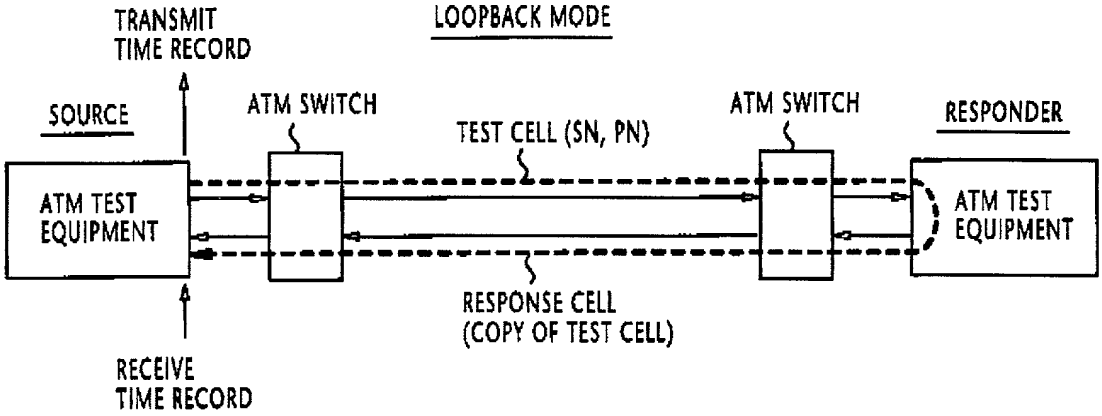


FIG. 2B

TWO-WAY MODE

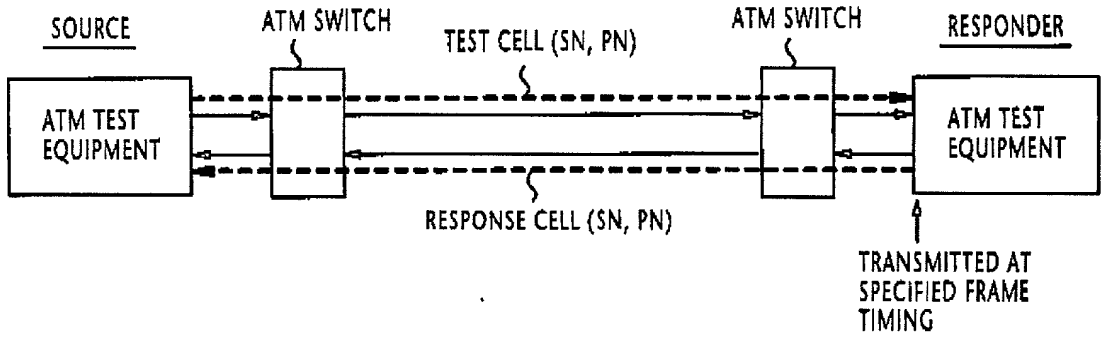


FIG. 2C

HANDSHAKING MODE

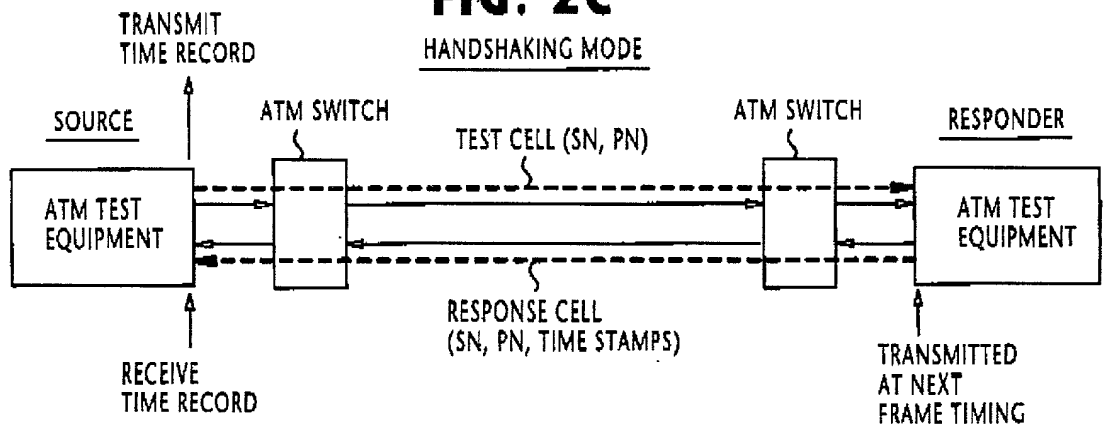


FIG. 3A

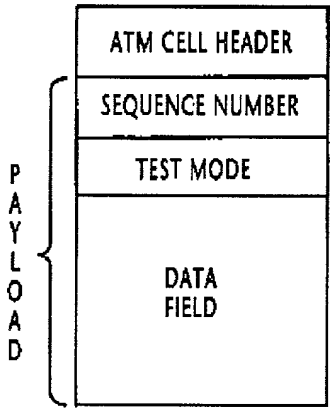


FIG. 3B

SOURCE AND RESPONDER NODES (LOOPBACK MODE)

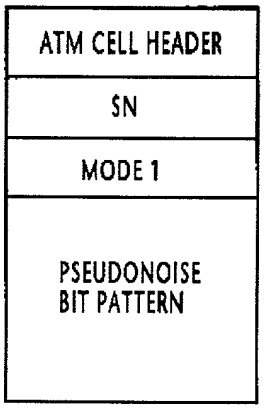


FIG. 3C

SOURCE AND RESPONDER NODES (TWO-WAY MODE)

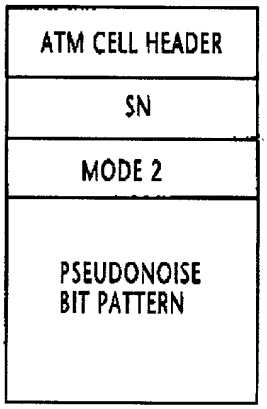


FIG. 3D

SOURCE NODE (HANDSHAKING MODE)

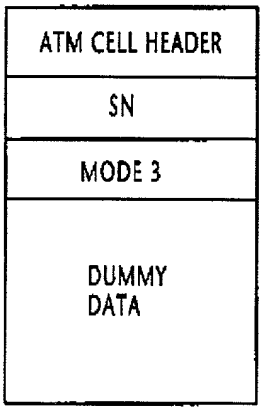


FIG. 3E

RESPONDER NODE (HANDSHAKING MODE)

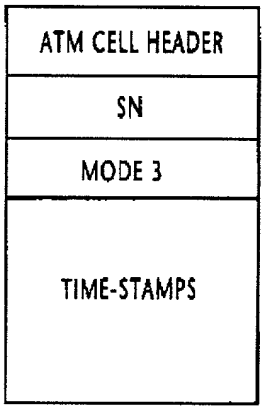
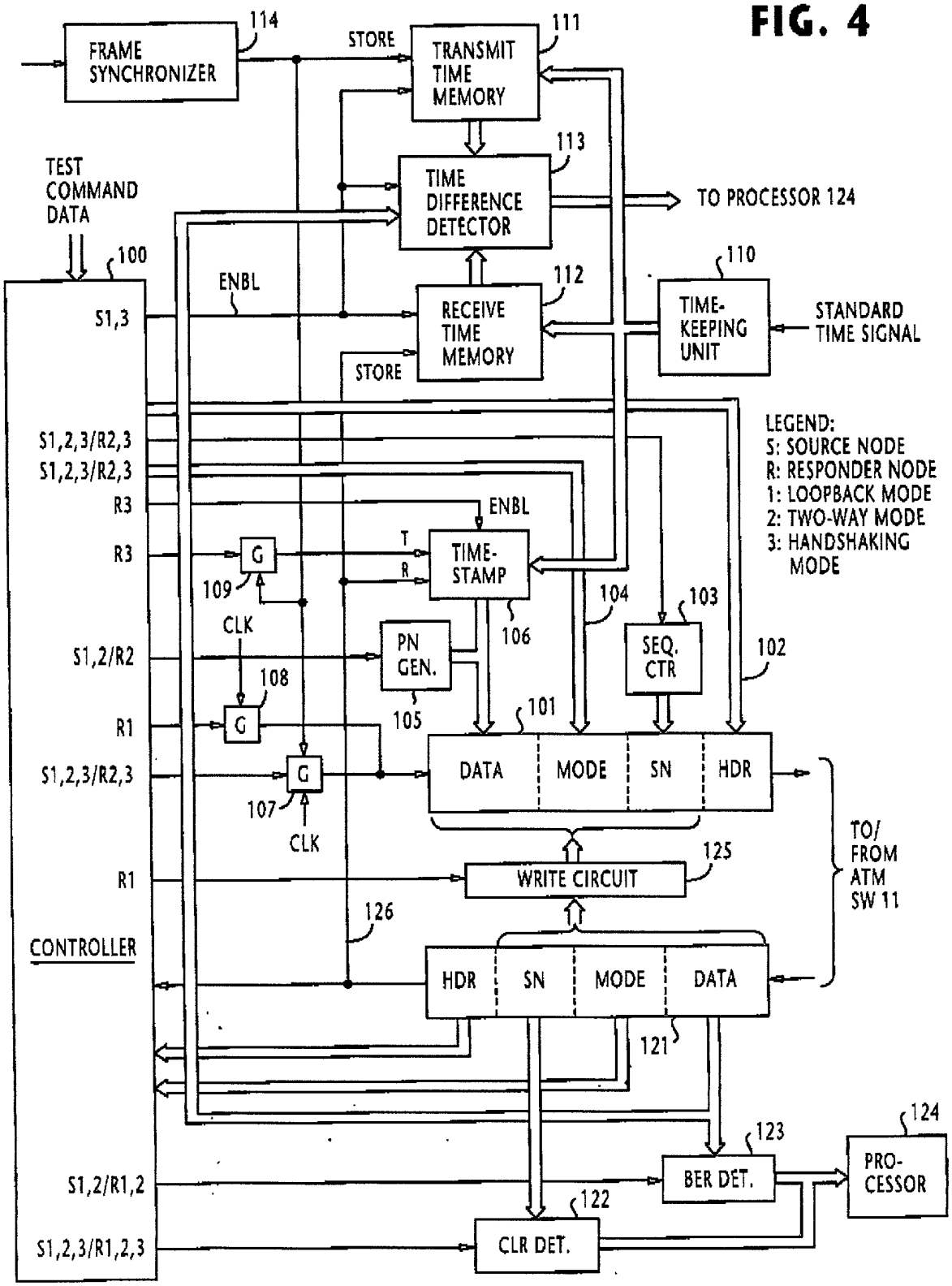


FIG. 4


FRAME SYNCHRONIZER
114
STORE
TRANSMIT TIME MEMORY
111
TIME DIFFERENCE DETECTOR
113
TO PROCESSOR 124
TEST COMMAND DATA
100
ENBL
RECEIVE TIME MEMORY
112
STORE
TIME-KEEPING UNIT
110
STANDARD TIME SIGNAL
S1,3
S1,2,3/R2,3
S1,2,3/R2,3
R3
R3
ENBL
T
R
TIME-STAMP
G
109
CLK
104
103
106
PN GEN.
SEQ. CTR
102
S1,2/R2
108
105
R1
101
S1,2,3/R2,3
G
DATA
MODE
SN
HDR
107
CLK
TO/ FROM ATM SW 11
R1
125
WRITE CIRCUIT
126
CONTROLLER
HDR
SN
MODE
DATA
121
124
123
PRO-CESSOR
S1,2/R1,2
BER DET.
122
S1,2,3/R1,2,3
CLR DET.
LEGEND:
S: SOURCE NODE
R: RESPONDER NODE
1: LOOPBACK MODE
2: TWO-WAY MODE
3: HANDSHAKING MODE

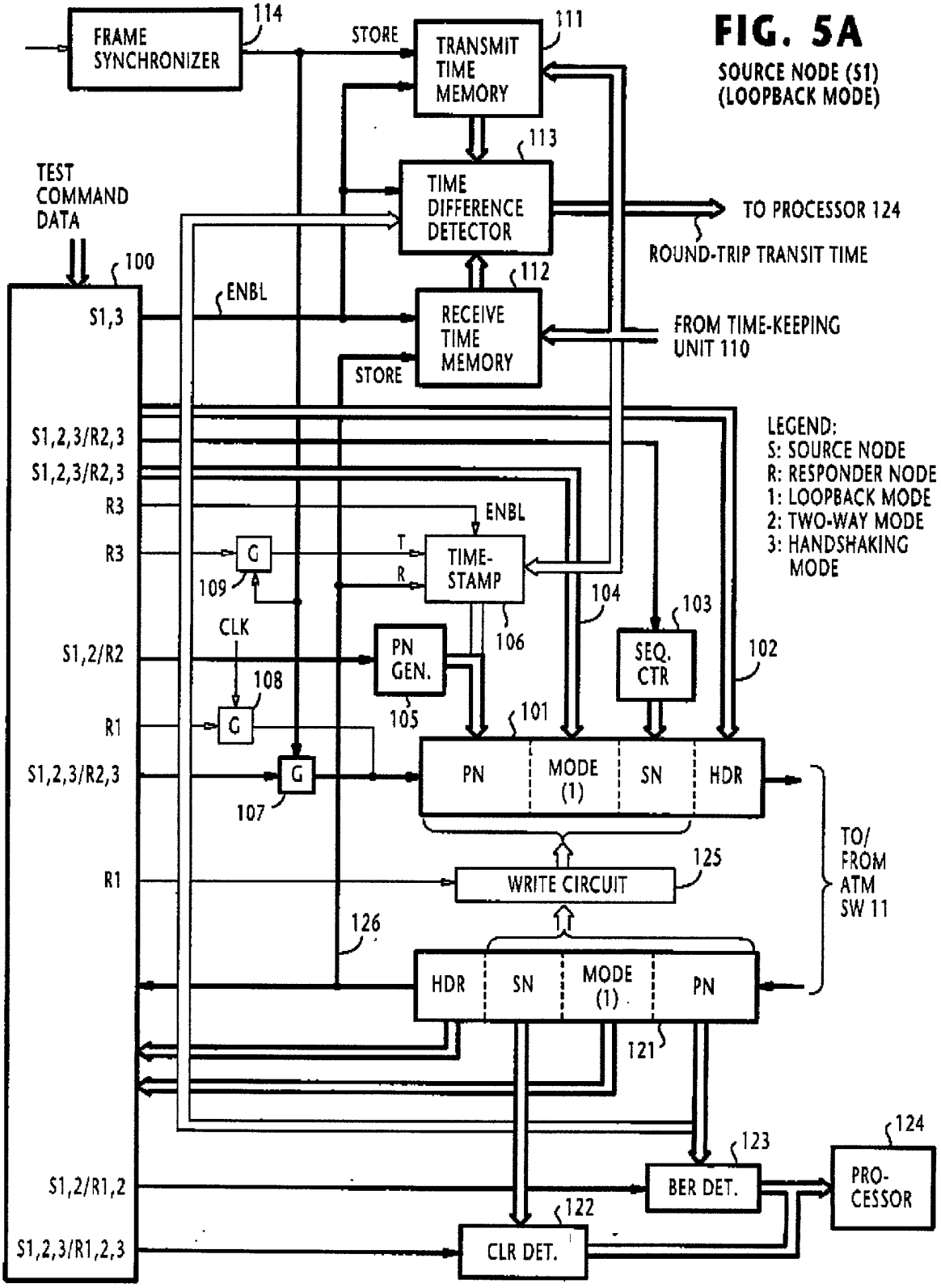


FIG. 5A
SOURCE NODE (S1)
(LOOPBACK MODE)

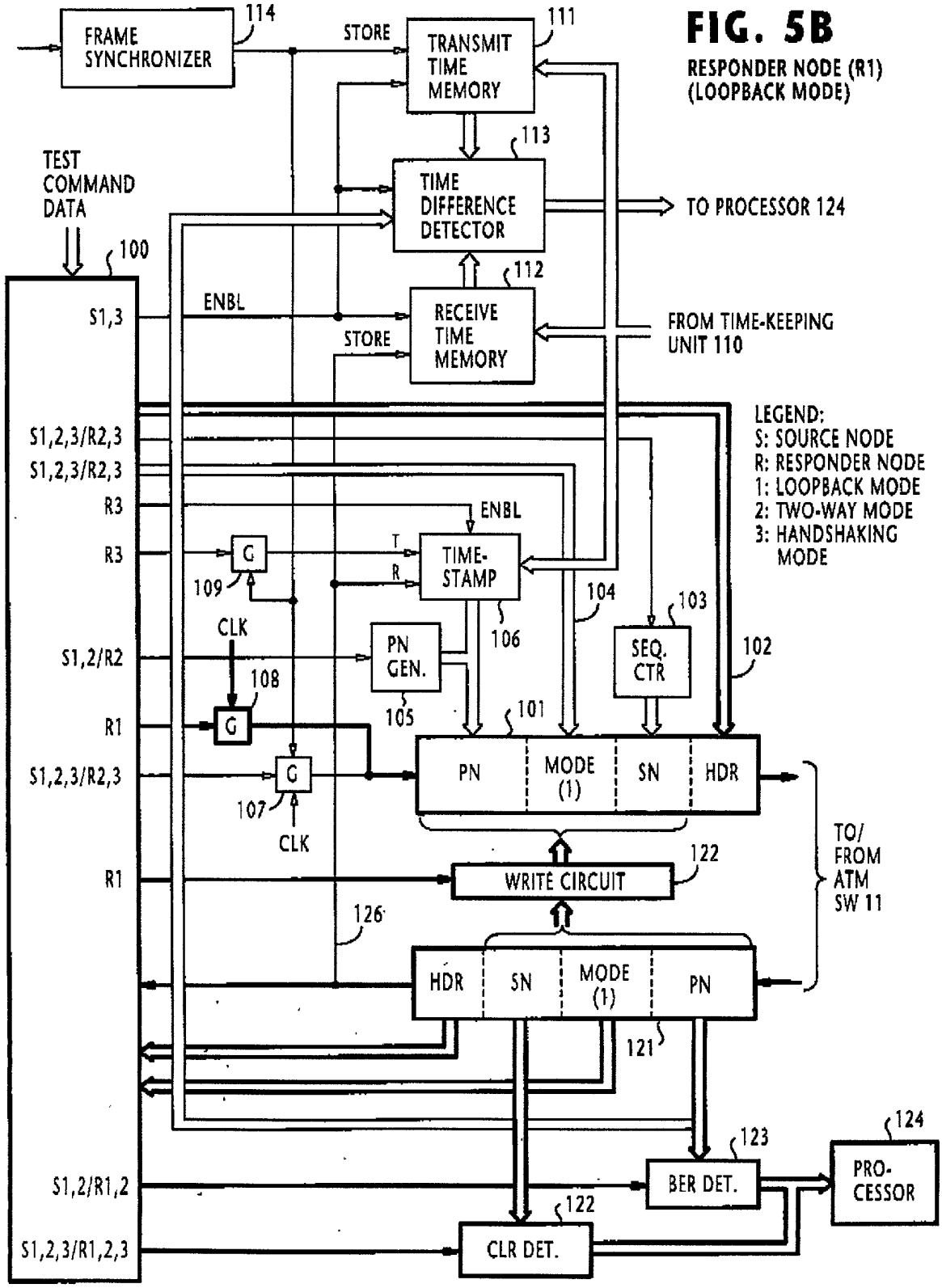


FIG. 5B
RESPONDER NODE (R1)
(LOOPBACK MODE)

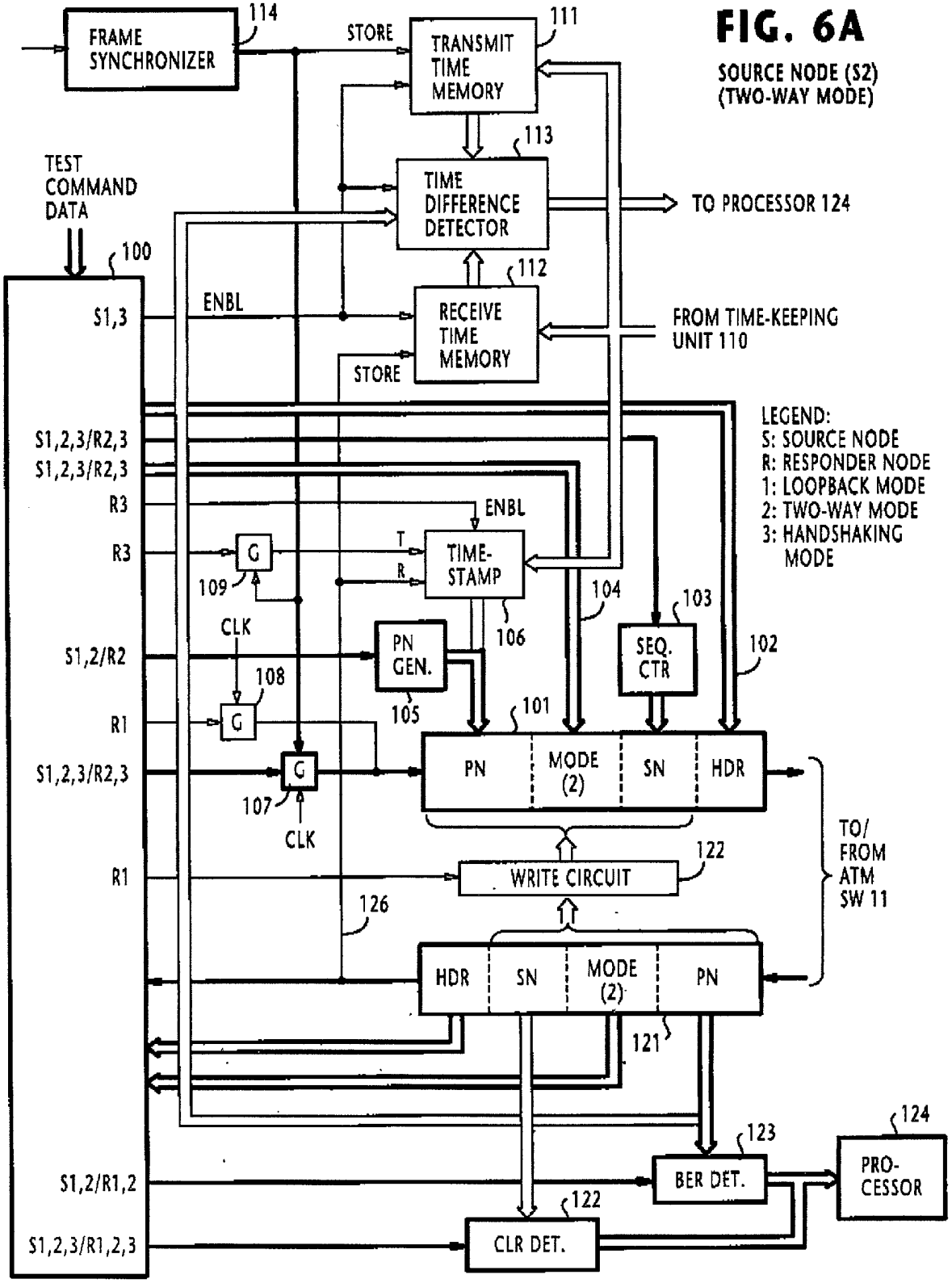


FIG. 6A

SOURCE NODE (S2)
(TWO-WAY MODE)

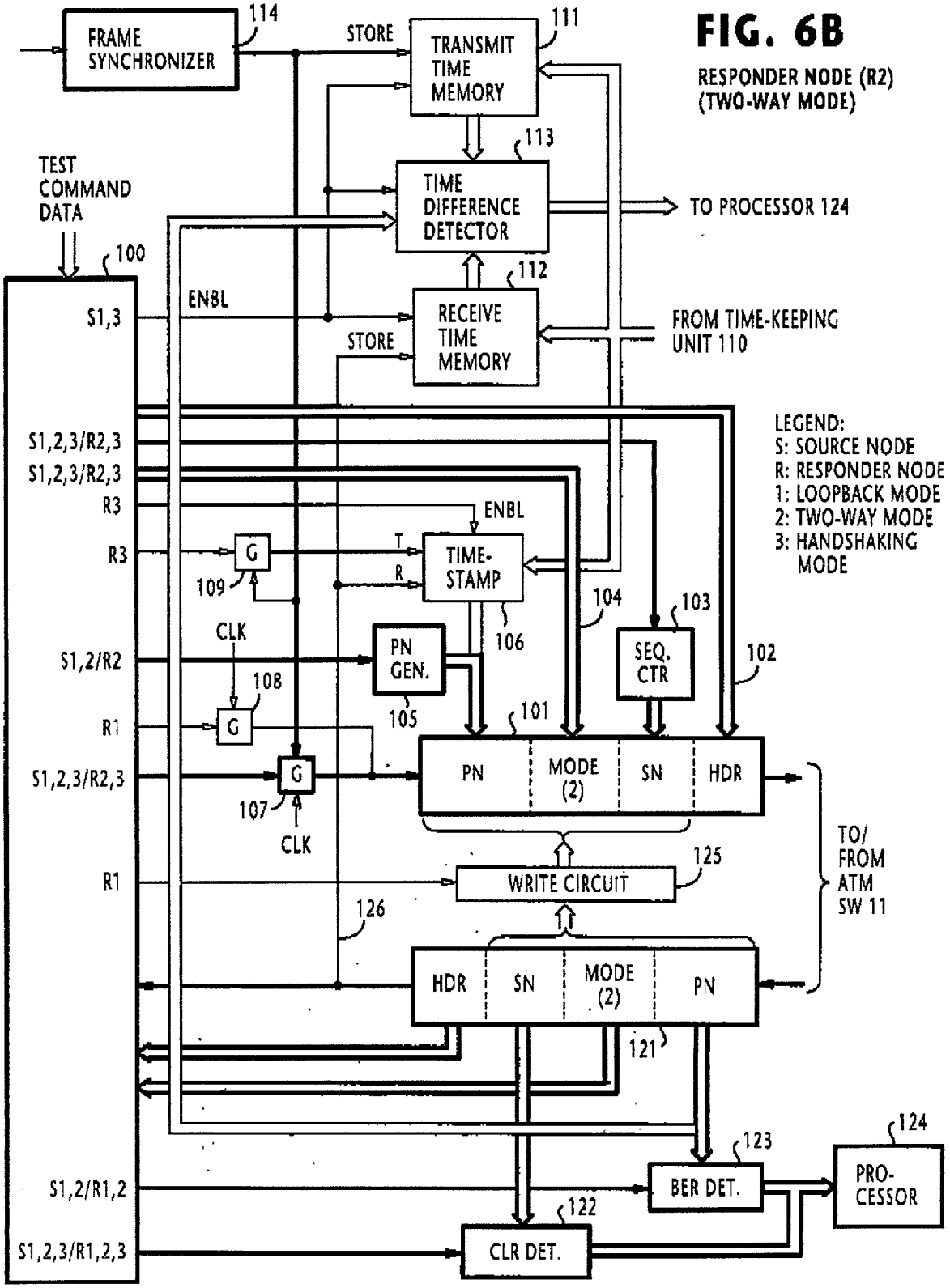


FIG. 6B

RESPONDER NODE (R2)
(TWO-WAY MODE)

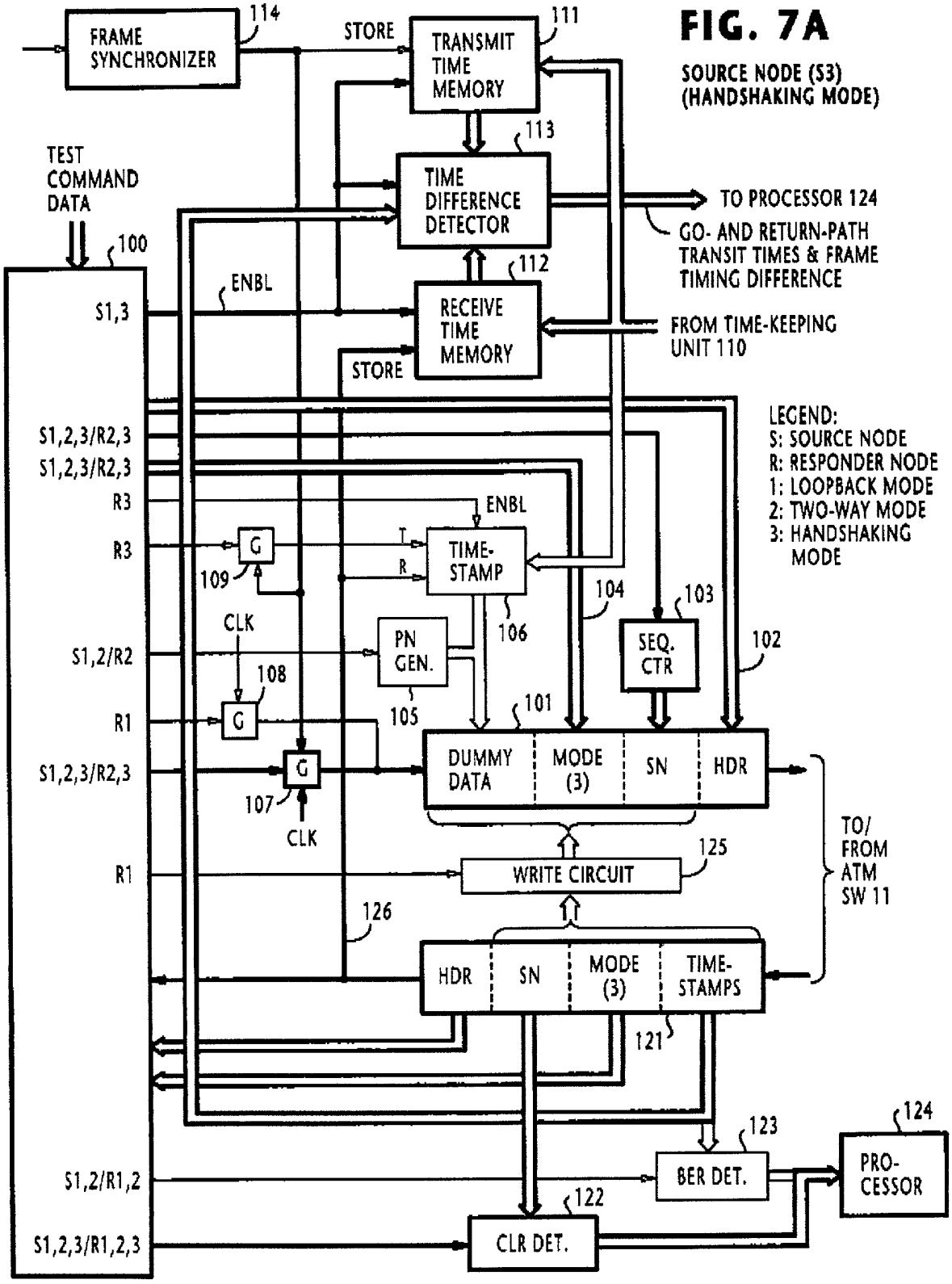


FIG. 7A

SOURCE NODE (S3)
(HANDSHAKING MODE)

NE-1035

FIG. 7B

RESPONDER NODE (R3)
(HANDSHAKING MODE)

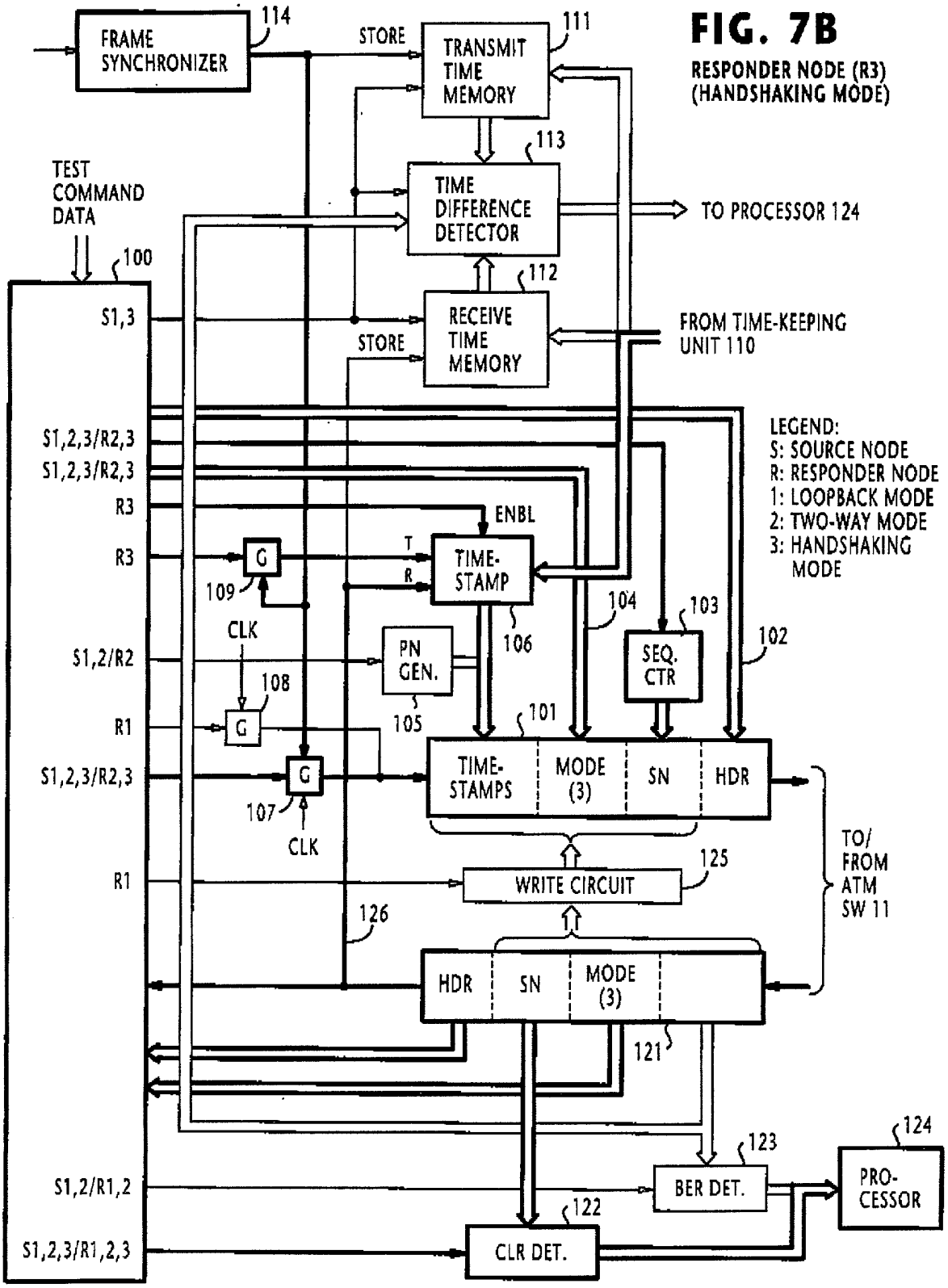


FIG. 8A LOOPBACK MODE

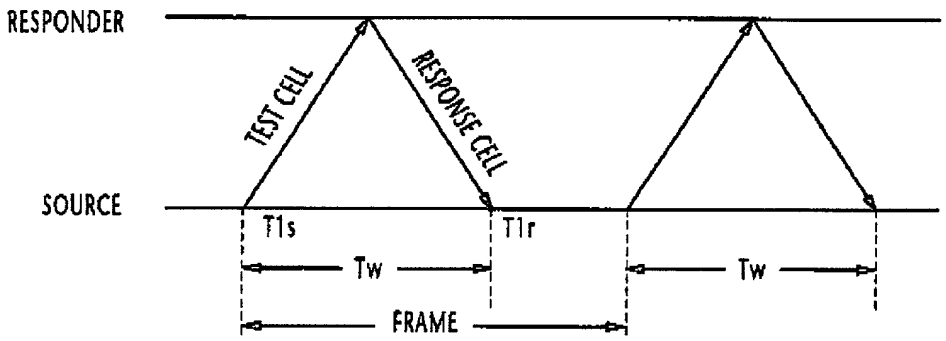


FIG. 8B TWO-WAY MODE

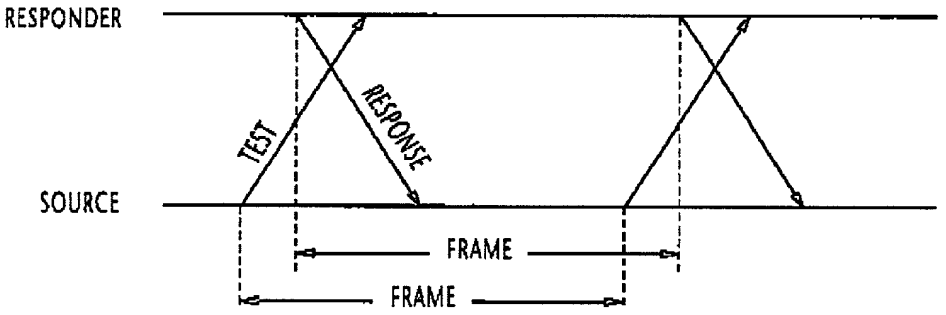


FIG. 8C HANDSHAKING MODE

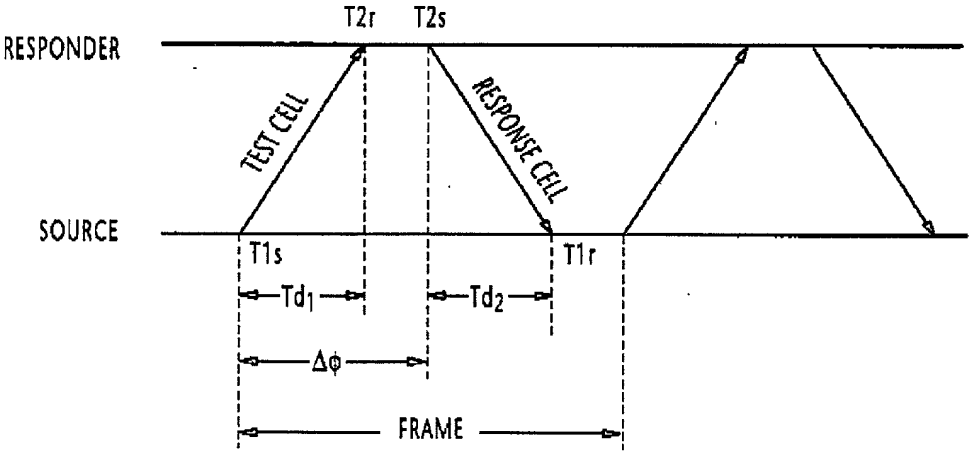
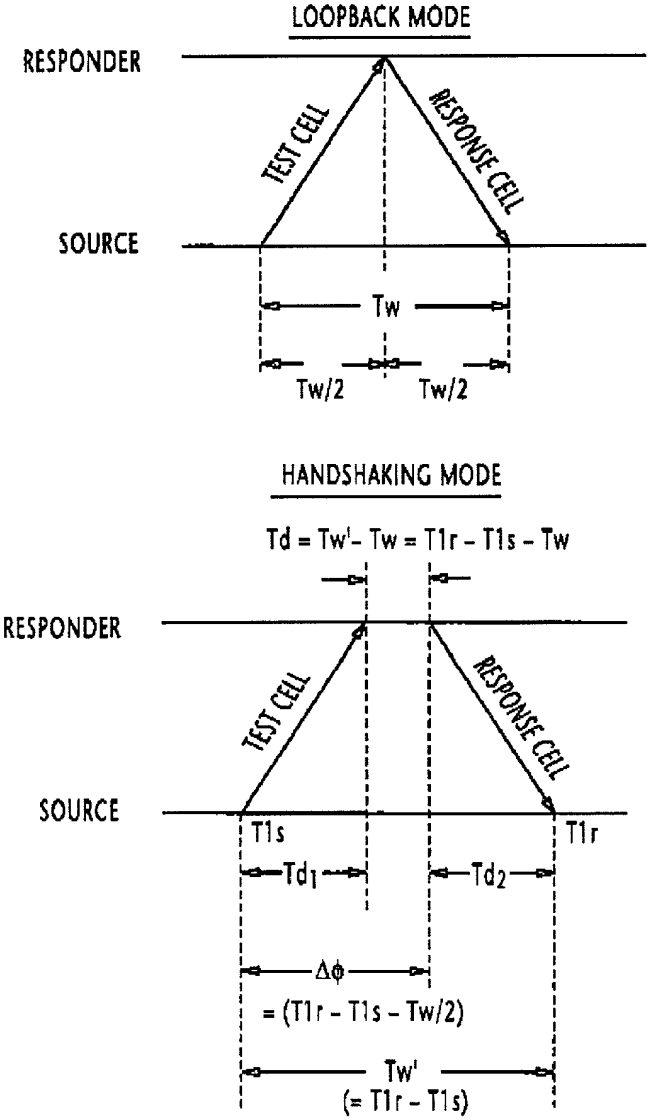


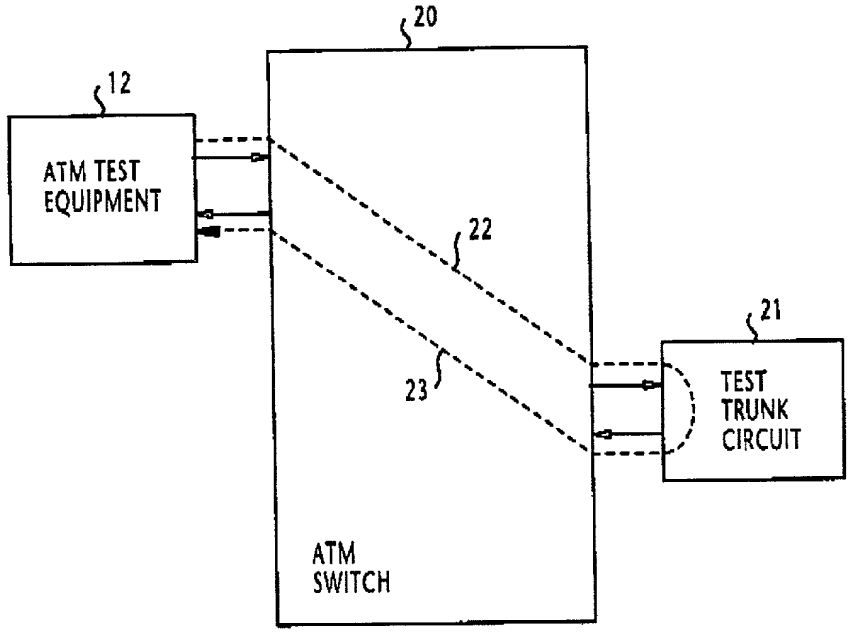
FIG. 9



$Td_1 = \Delta\phi - Td = \Delta\phi - (T1r - T1s - Tw)$

$Td_2 = Tw' - \Delta\phi = T1r - T1s - \Delta\phi$

FIG. 10


20
12
ATM TEST EQUIPMENT
22
21
23
TEST TRUNK CIRCUIT
ATM SWITCH